Intro to TDD

A World With Consequences

"Code without tests is bad code. It doesn't matter how well written it is; it doesn't matter how pretty or object-oriented or well encapsulated it is."
    - Michael Feathers

"Tests are stories we tell the next generation of programmers on a project."
— Roy Osherove

"TDD isn't something that comes naturally. It's a discipline, like a martial art, and just like in a Kung Fu movie, you need a bad-tempered and unreasonable master to force you to learn the discipline."
    -    Harry Percival

"Once you've worked on a system with extensive automated tests, I don't think you'll want to go back to working without them. You get this incredible sense of freedom to change the code, refactor, and keep making frequent releases to end users."
- Emily Bache

Objectives

➢ Introduce a TDD mindset

➢ Describe TDD in 3 words

➢ AAA Testing

➢ Interpreting a function signature

TDD as a Mindset

- ❖ Better to test now than fix later
- ❖ Automation is easier
- ❖ Context comes quicker
- ❖ Everybody will be impressed

TDD In Practice

1. Read acceptance criteria
2. Write failing test(s)
3. Write code-under-test
4. Observe passing tests
5. Read acceptance criteria
6. Refactor (improvement)

AAA Testing Pattern

```java
// Arrange
HashMap<String, String> actualInputs = new HashMap<>();
HashMap<String, String> expectedOutputs = new HashMap<>();

// Act
actualInputs.put("name", "tmobile");
actualInputs.put("industry", "telecommunications");
actualInputs.put("favColor", "magenta");

expectedOutputs.put("tmobile", "name");
expectedOutputs.put("telecommunications", "industry");
expectedOutputs.put("magenta", "favColor");

// Assert
assertEquals(expectedOutputs, MainClass.reverseTheHash(actualInputs));
```

Some Random Numbers

COST OF A SOFTWARE BUG

$100
If found in **Gathering Requirements** phase

$1,500
If found in **QA testing** phase

$10,000
If found in **Production**